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FINAL TECHNICAL REPORT

For Cooperative Agreement NCC 2-1120 Entitled:
"Physics of Granular Materials: Investigations in Support of
Astrobiology"

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CASI

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Overview:

The following publication list is submitted as a summary of the work conducted under Cooperative Agreement 1120. The goal of the 1120 research was to study granular materials within a planetary, astrophysical, and astrobiological context. This involved research on the physical, mechanical and electrostatic properties of granular systems, as well as the examination of these materials with atomic force microscopy and x-ray analysis. Instruments for analyzing said materials in planetary environments were developed, including the MECA experiment for the MSP '01 lander, the ECHOS/MATADOR experiment for the MSP '03 lander, an ISRU experiment for the '03 lander, and MiniLEAP technology. Flight experiments for microgravity (Space Station and Shuttle) have also been developed for the study of granular materials. As expressed in the publications, work on 1120 encompassed laboratory research, theoretical modeling, field experiments, and flight experiments: a series of successful new models were developed for understanding the behavior of triboelectrostatically charged granular masses, and 4 separate instruments were selected for space flight.

No inventions or patents were generated by the research under this Agreement.

Publications

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